

WHAT IS CLAIMED IS:

1. Recombinant, enzymatically active, human thyroid peroxidase, or a functional or chemical derivative thereof.
2. The human thyroid peroxidase of claim 1 produced by non-thyroid eukaryotic cells.
3. A plasmid selected from the group consisting of pECE-HTOP, pHTOP(M1)-ECE-SV2-DHFR, pHTOP-DHFR-2B, pHTPO-DHFR-4C AND pHTPO-DHFR-4C-MTX.
4. A non-thyroidal eukaryotic cell transformed with the plasmid of claim 3.
5. A method of producing human thyroid peroxidase, comprising culturing the transformed cell of claim 4 under conditions allowing expression of human thyroid peroxidase and recovering said human thyroid peroxidase.
6. An antibody raised against the human thyroid peroxidase of claim 2.
7. A method of detecting human thyroid peroxidase in a sample comprising contacting said sample with the antibody of

claim 6, wherein said antibody is detectable labeled, so as to form a complex between the human thyroid peroxidase in said sample and said detectably labeled antibody, and detecting the complexed or uncomplexed detectably labeled antibody.

8. A kit for the detection of human thyroid peroxidase in a sample, comprising container means comprising one or more containers, wherein one of said containers comprises the antibody of claim 6, wherein said antibody is detectably labeled.

9. A method of detecting an antibody to human thyroid peroxidase in a sample, comprising contacting a sample suspected of having an antibody to human thyroid peroxidase with the recombinant human thyroid peroxidase of claim 1, wherein said recombinant human thyroid peroxidase is detectably labeled, so as to form a complex between said antibody to human thyroid peroxidase present in said sample and said detectably labeled recombinant human thyroid peroxidase, and detecting the complexed or uncomplexed detectably labeled recombinant human thyroid peroxidase.

10. A kit for the detection of an antibody to human thyroid peroxidase in a sample, comprising container means comprising one or more containers, wherein one of said containers comprises the recombinant human thyroid peroxidase of claim 1, wherein said recombinant human thyroid peroxidase is detectably labeled.

11. A recombinant DNA sequence encoding human thyroid peroxidase which is secreted from a cell.

12. The DNA sequence of claim 11 wherein said sequence possesses a stop codon upstream from a transmembrane domain.

13. The DNA sequence of claim 12 wherein said sequence possesses a stop codon upstream from nucleotides encoding amino acid residues 846-870 as shown in figure 7.

a 14. A vector which comprises the DNA sequence of claim 11,
a ~~12, or 13.~~

15. A host cell transformed with the vector of claim 14.

16. Human thyroid peroxidase produced by the host cell of claim 15, or a functional or chemical derivative thereof.

17. A method of producing human thyroid peroxidase, comprising culturing the host cell of claim 15 under conditions allowing the expression and secretion of secretable human thyroid peroxidase, and recovering said human thyroid peroxidase.

18. An antibody raised against the human thyroid peroxidase of claim 16.

19. A method of detecting human thyroid peroxidase in a sample, comprising contacting a sample suspected of having human thyroid peroxidase with the antibody of claim 18, wherein said antibody is detectably labeled, so as to form a complex between said human thyroid peroxidase present in said sample and said detectably labeled antibody, and detecting the complexed or uncomplexed detectably labeled antibody.

20. A kit for the detection of human thyroid peroxidase in a sample, comprising container means comprising one or more containers, wherein one of said containers comprises the antibody of claim 18, wherein said antibody is detectably labeled.

21. A method of detecting an antibody to human thyroid peroxidase in a sample, comprising contacting a sample suspected of having an antibody to human thyroid peroxidase with the recombinant human peroxidase of claim 16, wherein said recombinant human thyroid peroxidase is detectably labeled, so as to form a complex between said antibody to human thyroid peroxidase present in said sample and said detectably labeled recombinant human thyroid peroxidase, and detecting the complexed or uncomplexed detectably labeled recombinant human thyroid peroxidase.

22. A kit for the detection of an antibody to human thyroid peroxidase in a sample, comprising container means comprising one

or more containers, wherein one of said containers comprises the recombinant human thyroid peroxidase of claim 16, wherein said recombinant human thyroid peroxidase is detectably labeled.

23. A substantially pure recombinant human thyroid peroxidase peptide comprising amino acid residues 713-721 of the thyroid peroxidase of claim 1.

24. Substantially pure recombinant thyroid peroxidase, wherein a nine amino acid region comprising residues 713-721 of recombinant human thyroid peroxidase, have been deleted or replaced.

25. A substantially pure peptide which binds to the B-cell epitope of thyroid peroxidase.

26. The substantially pure peptide of claim 25, wherein said peptide is isolated from a B-cell.

27. The substantially pure B-cell peptide of claim 26, wherein said peptide is recombinantly produced.

28. A DNA sequence encoding any one of the peptides of claims 25, 26, or 27.

29. An antibody raised against the recombinant thyroid peroxidase peptide of claim 23.

30. The antibody of claim 29 wherein said antibody is selected from the group consisting of a monoclonal antibody, polyclonal antibody, an anti-idiotypic antibody, or an anti anti-idiotypic antibody.

31. A method of detecting human thyroid peroxidase in a sample comprising contacting said sample with the antibody of claim 29, wherein said antibody is detectably labeled, so as to form a complex between the human thyroid peroxidase in said sample and said detectably labeled antibody, and detecting the complexed or uncomplexed detectably labeled antibody.

32. A pharmaceutical preparation comprising the anti-idiotypic antibody of claim 30.

33. A method of treating Hashimoto's thyroiditis comprising administering to a patient having Hashimoto's thyroiditis a therapeutically effective amount of the pharmaceutical preparation of claim 32.

34. A method for detecting human thyroid peroxidase auto-antibody in a sample, comprising contacting said sample with the peptide of any one of claims 23-26, or, 27, wherein said peptide is

detectably labeled, so as to form a complex between said human thyroid peroxidase auto-antibody in said sample and said detectably labeled peptide, and detecting complexed or uncomplexed detectably labeled peptide.

35. The method of claim 34, wherein said peptide is the peptide of claim 23.

36. The method of any one of claims 34 or 35, wherein said peptide is detectably labeled with a chemiluminescent label.

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